

Gurr, David H.

BEST AVAILABLE COPY USPTO 10/707,170REMARKS

Claims 1-25 are pending in the present application. In the Office Action mailed January 10, 2005, the Examiner rejected claims 12-18 under 35 U.S.C. §102(b) as being anticipated by claim 12 of Foo (USP 6,393,313). Applicant appreciates the allowability of claims 1-11 and 19-25.

Claim 12 stands rejected under 35 U.S.C. §102(b) as being anticipated by Foo. Foo teaches a "method for reconstructing an image from partial Fourier image data set us[ing] Hermitian conjugate symmetry to replace the missing k-space data." Col. 2, lns. 32-34. Foo teaches that "[n]umerous phase errors are present in MRI data that make the image complex." Col. 2, lns. 35-37. Further, Foo teaches that "[t]o enable Hermitian conjugate replacement to work with a complex image, the replacement of the missing k-space data is accompanied by a phase correction which removes the phase errors from this data." Col. 2, lns. 40-44. To accomplish the Hermitian conjugate replacement, Foo teaches "[a] Homodyne high pass filter [that] doubles the amplitude of the acquired k-space data which is conjugate to the missing k-space data prior to the Fourier transform." Col. 2, lns. 50-52. Simply put, Foo teaches stationary table homodyne processing similar to that described at paragraphs 27 and 28 of the present application. As set forth in the present application, such a stationary table approach for correcting data has drawbacks when applied to moving table MRI.

That is, as is well-known, moving table MR data acquisition introduces additional phase errors in the k-space data. Specifically, geometric distortions are present in the k-space data acquired during translation of the subject. As is also well-known, these additional phase errors cannot be corrected through homodyne processing. Typically, in moving table MRI, homodyne processing is carried out to correct for phase errors that are encountered during partial Fourier data acquisitions. Moving table correction is then carried out to correct the phase errors associated with the acquisition of data while the subject is being translated. As set forth in the present application, such an approach has drawbacks. The invention called for in claim 12 is designed to overcome those drawbacks. Specifically, claim 12 calls for an image generation technique that utilizes Hermitian symmetry in the reconstruction of an image after the data has been corrected for moving table induced errors. That is, moving table correction occurs before Hermitian symmetry is used to provide data for unsampled k-space locations.

Foo does not teach or suggest the acquisition of data from a moving table or an image generation technique that utilizes Hermitian symmetry in the reconstruction of an image after the data has been corrected for moving table induced errors. That is, Foo teaches stationary table

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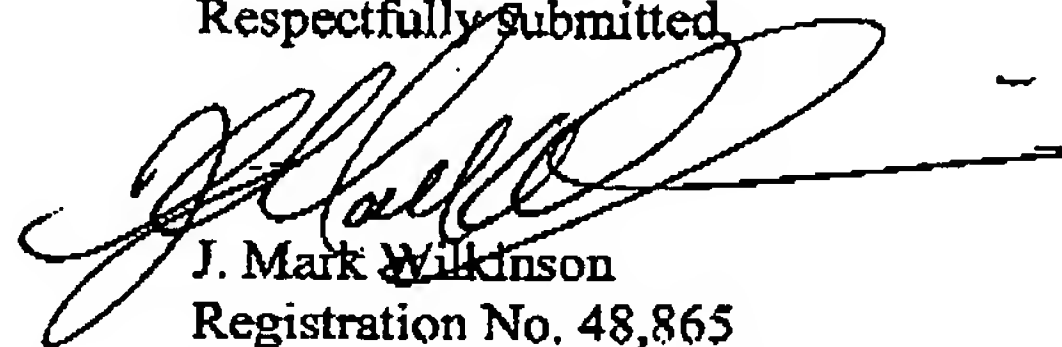
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acquisition and conventional Homodyne processing to correct phase errors encountered in stationary table MRI. Accordingly, Applicant believes that claims 12-18, as amended herein, call for subject matter that is patentably distinct from that taught and/or suggested by Foo. Additionally, Applicant believes claim 26, newly presented herein, is also in condition for allowance as calling for subject matter not taught and/or suggested by the art record. Further, claim 26 is believed to depend from an otherwise allowable claim.

Therefore, in light of at least the foregoing, Applicant respectfully believes that the present application is in condition for allowance. As a result, Applicant respectfully requests timely issuance of a Notice of Allowance for claims 1-12 and 14-26.

Applicant appreciates the Examiner's consideration of these Amendments and Remarks and cordially invites the Examiner to call the undersigned, should the Examiner consider any matters unresolved.

Respectfully Submitted,



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